

AMENDMENTS TO THE DRAWINGS

Attached is one replacement drawing sheet including Figs. 1 and 2 which should replace the original drawing sheet including Figs. 1 and 2. In the replacement drawing sheet, Fig. 1 has been changed to include the label "connector portion" for the feature identified by reference numeral 12.

Replacement Sheet

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

Submitted with this Amendment is a replacement drawing sheet including Figs. 1 and 2. Fig. 1 has been amended to include the label "connector portion" for the feature identified by reference numeral "12."

Also, Claim 11 has been canceled, thus negating the issue raised at the top of page two of the Official Action concerning the subject matter recited in Claim 11.

With respect to the issues raised at the bottom of page two and top of page three of the Official Action, the following is noted. With respect to the observation concerning the "wire" running from top to bottom to the right of the second yoke 3 in Fig. 1, the noted feature is not a wire. Rather, Fig. 1 shows a partially cut-away section of the case 11. The section line illustrating the cut-away view is the feature which was thought to be a "wire".

With respect to reference numerals 11a and 9, those two reference numerals point to and identify different features. Reference numeral 11a refers to the attached surface of the case 11 as mentioned in the third line of paragraph [0022] of the application, while reference numeral 9 identifies the stationary portion as mentioned in the second line of paragraph [0022]. Due to the close proximity of the stationary portion 9 and the attached surface 11a of the case 11, it is difficult to differently identify them other than the way illustrated. To the extent the Examiner would prefer an alternative to that illustrated in Fig. 1, the Examiner is kindly asked to contact the undersigned so that such issue can be resolved.

In light of the foregoing, withdrawal of the drawing objections is respectfully requested.

Minor amendments have been made to paragraphs [0022] and [0026] of the application to change the somewhat awkward original wording and thereby address the points noted at the bottom of page 3 and the top of page 4 of the Official Action. In particular, the wording in the latter part of paragraph [0022] has been clarified to make more clear the alternative nature of the described subject matter. In addition, the description in paragraph [0026] pertaining to the magnetic bodies has been improved.

Accordingly, withdrawal of the objection to the disclosure is respectfully requested.

Appreciation is expressed to Examiner Schindler for indicating that Claims 14 and 15 would be allowable if rewritten in independent form. Claim 14 has been amended to include the subject matter recited in Claims 1 and 4, and Claim 15 has been amended to include the subject matter recited in Claims 1, 2 and 3. It is thus believed that Claims 14 and 15 are allowable.

Original Claims 1-13 have been canceled in favor of newly presented Claims 16-22. Thus, the claim objections set forth on pages four and five of the Official Action are no longer relevant.

Of the new claims presented by way of this Amendment, Claim 16 is the only independent claim. Claim 16 defines a position detecting sensor for detecting the position of a magnetic body. The claimed position detecting sensor comprises a first yoke that includes a main body portion and a projecting portion extending from the main body at right angles to the main body, first and second magnets disposed at

opposite ends of the main body, a second yoke positioned so that a space exists between the second yoke and the tip end of the projecting portion, and a magnetic detecting element disposed in the space between the second yoke and the tip end of the projecting portion. First magnetic flux from the first magnet travels from the north end of the magnet towards the second yoke and then flows back to the south end of the first magnet by way of the magnetic detecting element and the projecting portion. Second magnetic flux from the second magnet travels from the north end of the second magnet towards the second yoke by way of the projecting portion and the magnetic detecting element, and then flows back to the south end of the second magnet. As further recited in Claim 16, lines of magnetic flux from the first magnet and the second magnet flow in opposite directions to one another at the magnetic detecting element. The magnetic fluxes from the first and second magnets passing through the magnetic detecting element are canceled with each other when the magnetic body is positioned at a place near or adjacent to the position detecting sensor at which the first magnetic flux passes through the magnetic body. In addition, the magnetic flux passing through the magnetic detecting element becomes substantially greater than a predetermined threshold value when the magnetic body is positioned away from the positioned detecting sensor.

One of the documents relied upon in the rejection of original independent Claim 1 is European Application Publication No. 0 916 953 to *Gotoh et al.* This document discloses a pulse signal generator that includes a wire-type magnetic element 1 around which is wound a detection coil 2. The pulse signal generator also includes a magnetic field generator 3 and a magnetic circuit forming member 4. The magnetic field generator 3 includes a permanent magnet 31 and a pair of magnetic

members 32 extending from opposite ends of the permanent magnet 31. The magnetic circuit forming member 4 includes a permanent magnet 41 possessing poles opposite those of the permanent magnet 3, and a magnetic member 42 attached to one end of the permanent magnet 41.

The claimed position detecting sensor recited in independent Claim 16 differs from the disclosure in *Gotoh et al.* in several respects. *Gotoh et al.* does not disclose a first yoke constructed in the claimed manner, with first and second magnets disposed on opposite ends of the main body of the first yoke. There is also no disclosure in *Gotoh et al.* of the claimed second yoke together with other claimed aspects of the position detecting sensor recited in independent Claim 16.

The Official Action also refers to the disclosure in U.S. Patent No. 4,236,093 to *Birnbaum*. This document describes a speed insensitive wheel detector. The detector 200 is supported on a rail 201 and is coupled to the web of the rail by a support bar 250. The detector 200 includes a pair of magnets 211, 212 and a sensing coil 228. In addition, ferromagnetic members 220, 221 are respectively connected to the support member 250 and a pole piece 213. The sensing coil 228 is positioned in the area between the two ferromagnetic members 220, 221.

Birnbaum discusses beginning in line 29 of column 9 that as a wheel 202 moves through the detector 200, a flange 202' of the wheel 202 will move from adjacent the magnet 212 to adjacent the magnet 211. When the flange 202' is located at one end of the detector 200, the flux direction across the air gap 217 between the faces 215, 216 of the ferromagnetic members 220, 221 is in one direction, and when the flange 202' moves to the other end of the detector 200, the flux direction across the air gap 217 is in the opposite direction. It is thus apparent

from the disclosure in *Birnbaum* that the disclosed detector differs from the claimed position detecting sensor recited in Claim 16 at least because *Birnbaum* does not disclose magnetic fluxes from the magnets 211, 212 passing through the sensing coil 228 being canceled with one another when the flange 202 of the wheel is positioned at a place near or adjacent to the position detecting sensor 200 at which the magnetic flux from the magnet 211 passes through the flange. This is understood from the fact that *Birnbaum* does not disclose that magnetic fluxes from the two magnets 211, 212 flow in opposite directions at the same time and so there is no canceling out of the magnetic fluxes as recited in independent Claim 16. It is thus respectfully submitted that even if one were somehow motivated to modify the device disclosed in *Gotoh et al.* in light of the disclosure in *Birnbaum*, the result would not be that which is recited in independent Claim 16.

The Official Action also refers to the disclosure in U.S. Patent No. 6,653,830 to *Luetzow*. However, this document does not make up for the deficiencies pointed out above. Thus, the disclosure contained in this documents, considered together with the disclosures in *Gotoh et al.* and *Birnbaum*, would not have motivated one to construct a position detecting sensor having the combination of features recited in Claim 16.


For at least the reasons discussed above, it is respectfully submitted that the claimed position detecting sensor recited in independent Claim 16, as well as dependent Claims 17-22, is patentably distinguishable over the disclosure contained in the applied documents. Accordingly, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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